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# BERKELIUM

Element Symbol: **Bk**

Atomic Number: **97**

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Berkelium, the eighth member of the actinide transition series, was discovered in December 1949 by Glenn Seaborg and his team at Berkeley, California. Glenn Seaborg was honoured with the Nobel Prize in 1951 for his work on this and other new elements.

The new element was named after this wonderful town within the greater San Francisco Bay Area, in part because the element directly above it on the periodic table, Terbium, had been named after the town of its discovery. The next element, number 98, is called Californium and was prepared by the same team shortly afterwards.

The College of Chemistry at the University of California, Berkeley is still recognized as the world leader in chemistry research.

Berkelium was the fifth transuranium (i.e. to the right hand side of uranium) element prepared - but was the first prepared after the use of the atomic bomb at the end of World War II.

It is produced by cyclotron bombardment of milligram amounts of  $^{241}\text{Am}$  with helium ions. Eighteen isotopes have been synthesized, with half-lives ranging from minutes to millennia.

Berkelium usually forms a +3 cation and several salts have been prepared including chloride, fluoride and oxide. It also can be oxidised to the +4 state.

It is extremely toxic, both due to its radioactivity and the fact that it is a very heavy metal. It accumulates in the skeletal system.

Berkelium is only used in research, in particular to generate other radioactive elements. In 2009, it was used to make the newest element 117 by bombarding berkelium-249 with calcium ions.

*Provided by the element sponsor Madeleine Schultz*

## ARTISTS DESCRIPTION

The image is taken from a newly formed atom when Berkelium is split by Calcium atoms. Superimposed over this is the universal image for radioactivity.

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